

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

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07 Feb. 2003

B.3. Ab-2

INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

Date of mailing
(day/month/year)

03/02/2006

Applicant's or agent's file reference

O 1 P 100 WO

PAYMENT DUE

within **ONE MONTH** from
the above date of mailing

International application No.

PCT/EP2005/001127

International filing date
(day/month/year)

04/02/2005

Applicant

OUTOKUMPU OYJ

1. This International Searching Authority

(i) considers that there are 3 (number of) inventions claimed in the international application covered by the claims indicated below on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated below/on the extra sheet:

(ii) ☒ has carried out a partial international search (see Annex) ☐ will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:

see annex

(iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid

2. The applicant is hereby **invited**, within the time limit indicated above, to pay the amount indicated below:

$$\frac{\text{EUR } 1.550,00}{\text{Fee per additional invention}} \times \frac{2}{\text{number of additional inventions}} = \frac{\text{EUR } 3.100}{\text{total amount of additional fees}}$$

Or, _____ x _____ = _____

The applicant is informed that, according to Rule 40.2(c), the payment of any additional fee may be made under protest, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. ☐ Claim(s) Nos. _____ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority



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Authorized officer

Nadine Klop

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5 (partially);6-15;23-30

A process, and its associated electrolytic plant, for electrodepositing copper from an electrolyte solution, in which the electrodes have a horizontal hanger bar with a first end and a second end and at the edge of the electrolyte tank two contact bars are provided, with each connected to a power source, the first end of the hanger bar of the cathode resting on one of the two contact bars via a two-line contact and the first end of the hanger bar of the anode resting on the other one of the two contact bars via a two-line contact.

2. claims: 1-5 (partially);16-21;31-33

A process, and its associated electrolytic plant comprising at least one electrolytic cell, for electrodepositing copper from an electrolyte solution, in which in the at least one electrolytic cell a fluid distributor is provided, through which during operation of the electrolysis electrolyte solution, gas bubbles or a mixture of electrolyte solution and gas bubbles are introduced into the electrolytic cell.

3. claims: 1-5 (partially);22

A process, and its associated electrolytic plant, for electrodepositing copper from an electrolyte solution, in which the cathodes have an indentation of V-shaped cross-section at their lower longitudinal edge.

The International Search Authority considers that there are three inventions covered by the claims summed up as written above.

1.1 The reasons for which the inventions are not so linked to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows :

The single general concept is the subject-matters of claims 1-5. This concept is not inventive (Art. 33(3) PCT), for the following reason :

Patent DE 199 40 698 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

A process for copper electrowinning from an electrolyte solution containing the metal in ionogenic form (col. 1, l. 5-7), in which the electrolyte is passed through an electrolysis cell which, in an electrolyte tank for receiving the electrolyte has several electrodes,

alternatively arranged anodes and cathodes (col. 2, l. 32-33).

The subject-matter of claim 1 therefore differs from this known electrowinning process in that:

The cathodes are immersed into the electrolyte over a length of at least 1.2 meters, whereas usually, this length is up to 1 meter. As an effect, the amount of copper deposited on the cathode in one deposition cycle is higher than the amount of copper deposited on a cathode of 1 meter length immersion.

The problem to be solved by the present invention may therefore be regarded as increasing the efficiency of the process.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.

The increase of the deposition surface is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed, since there does not seem to be any objection in the available prior-art to limit the length of the immersed cathode specifically to 1 meter. Namely, increasing this length to 2 meters, or increasing the number of cathodes does not seem to involve an inventive step. A current density of 200A/m.² is a normal option, that the person skilled in the art would consider in such a process without the exercise of inventive skill.

In conclusion, the groups of claims are not linked by a common or corresponding special technical feature and define three different inventions not linked by a single general inventive concept,

1.2 Moreover the three inventions define three different technical features, solving three different problems

Group 1-5 (partially);6-15;23-30

The special technical feature of this group is the two-line contact between the hanger bar of the electrodes and their respective contact bar. This contact provides a large amount of current to the electrodes.

Group 1-5 (partially);16-21;31-33

The special technical feature of this group is the fluid distributor provided in the electrolytic cell. This allows to increase the mixing of the electrolyte, and thus, to ensure a better uniformity of the deposition on the whole surface of the cathode.

Group 1-5 (partially);22

The special technical feature of this group is the V-shaped indentation of the lower longitudinal edge. This decreases the undesired increased deposition at the edge of the cathode, and enables a separation of the front and rear sides deposited on the cathode.

In conclusion, the groups of claims are not linked by a corresponding

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special technical feature and define three different inventions.

The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

**Annex to Form PCT/ISA/206
COMMUNICATION RELATING TO THE RESULTS
OF THE PARTIAL INTERNATIONAL SEARCH**

International Application No
PCT/EP2005/001127

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
- see 'Invitation to pay additional fees'
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 199 40 698 A1 (METALLGESELLSCHAFT AG; MG TECHNOLOGIES AG) 8 March 2001 (2001-03-08)	1-7, 9-15, 23-30
Y	column 2, line 29 - column 3, line 15; figures 1-4	8
Y	----- US 5 679 240 A (ANASTASIJEVIC ET AL) 21 October 1997 (1997-10-21) column 1, line 32 - line 57 column 2, line 5 - line 50	8
A	----- GB 1 460 089 A (IMPERIAL METAL INDUSTRIES LTD) 31 December 1976 (1976-12-31) page 2, line 24 - line 37 page 3, line 95 - line 109 -----	1-8, 23-25

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Patent Family Annex

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 19940698	A1	08-03-2001	AU 4404000 A	26-03-2001
			WO 0116400 A1	08-03-2001
US 5679240	A	21-10-1997	AU 704628 B2	29-04-1999
			AU 5944896 A	23-01-1997
			DE 19525360 A1	16-01-1997
			EP 0753604 A1	15-01-1997
GB 1460089	A	31-12-1976	AU 501324 B2	14-06-1979
			AU 8639075 A	12-05-1977
			DE 2550178 A1	26-05-1976
			JP 996025 C	30-04-1980
			JP 51070122 A	17-06-1976
			JP 54028283 B	14-09-1979